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MORBIDITY AND MORTALITY WEEKLY REPORT

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Diabetes-Related Amputations of Lower Extremities in the Medicare Population — Minnesota, 1993–1995

Diabetes mellitus is the leading cause of nontraumatic lower-extremity amputations (LEAs) in the United States and accounts for 45%–70% of all nontraumatic LEAs (1,2). Approximately half of diabetes-related LEAs occur among persons aged ≥ 65 years (1–3). To assess LEA hospitalization rates and costs for Medicare enrollees aged ≥ 65 years with and without diabetes, the Minnesota Diabetes Control Program (DCP) and Stratis Health (Minnesota Medicare Quality Improvement Organization) analyzed data for federal fiscal years 1993–1995 (October 1992–September 1995). This report summarizes the findings, which indicate that the LEA Medicare hospitalization rate for persons with diabetes was nearly 13 times the rate for persons without diabetes.

International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), procedural codes 84.10–84.19 were used to identify LEAs in inpatient claims data. Trauma-related LEAs (codes 895–897) were excluded from the analyses. Medicare enrollees who participated in capitated risk health-maintenance organization (HMO) plans (approximately 10%) were excluded because no claims were available describing their care. Persons with diabetes were identified by a discharge code of 250.0–250.9 listed at the time of the LEA or during any hospitalization within the preceding 365 days. Diabetes prevalence estimates and confidence intervals (CIs) were the average annual state prevalence estimates and CIs of diabetes derived from the Behavioral Risk Factor Surveillance System for 1993–1995. These prevalence estimates were applied to the Minnesota Medicare population (derived from the Medicare enrollment history files) to estimate the number of persons with and without diabetes in this population. LEA hospitalization rates were calculated per 10,000 Medicare enrollees with or without diabetes by age and sex. Relative risk was defined as the hospitalization rate for LEA among persons with diabetes divided by the rate among persons without diabetes. The population attributable risk (PAR) was calculated by subtracting the LEA hospitalization rate for persons without diabetes from the rate for the total population, and dividing by the total population rate (4).

The average annual number of LEA hospitalizations was 931 (Table 1); of these, 552 (59%) occurred among persons with diabetes. The average annual cost to Medicare for LEA hospitalizations in Minnesota was \$10.2 million, \$6 million of which was for persons with diabetes.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Diabetes-Related Amputations — Continued

TABLE 1. Prevalence* of and average reimbursement for lower extremity amputations (LEAs)[†] among persons with and without diabetes — Minnesota Medicare population, October 1993–September 1995

Characteristics	No. hospitalizations	Rate [‡]	(95% CI)	Average reimbursement [§]
Persons with diabetes				
Sex				
Men	324	144.4	(117.3–187.9)	\$10,631
Women	228	75.4	(64.6– 90.7)	\$11,112
Age group (yrs)				
65–74	258	98.6	(82.8–122.1)	\$11,184
≥75	294	110.5	(92.1–138.1)	\$10,511
Total	552	105.6	(93.0–122.2)	\$10,829
Persons without diabetes				
Sex				
Men	190	10.2	(9.9– 10.5)	\$11,215
Women	189	7.0	(6.9– 7.2)	\$10,859
Age group (yrs)				
65–74	101	4.2	(4.2– 4.2)	\$12,860
≥75	278	12.9	(12.6– 13.2)	\$10,372
Total	379	8.3	(8.2– 8.5)	\$11,037
Total	931	18.3		\$10,914

* Annual averages for fiscal year 1993 through fiscal year 1995.

[†] For inpatient procedures only.[‡] Per 10,000 Medicare enrollees with or without diabetes.[§] Average Medicare reimbursements for LEA hospitalizations.

Regardless of diabetes status, the LEA hospitalization rates (per 10,000 Medicare enrollees) were higher for men than for women and for persons aged ≥75 years than for persons aged 65–74 years. The relative risk for LEA hospitalization among persons with diabetes compared with persons without diabetes was 12.7 per 10,000 Medicare enrollees (95% CI=10.9–14.9). For persons with diabetes compared with persons without diabetes, the relative risk was higher for men (14.2; 95% CI=11.2–19.0) than women (10.8; 95% CI=9.0–13.1) and higher for persons aged 65–74 years (23.5; 95% CI=19.3–29.1) than persons aged ≥75 years (8.6; 95% CI=7.0–11.0). On the basis of PAR calculations, 55% of all hospitalizations for LEA were directly attributable to diabetes.

The Minnesota DCP and Stratis Health are collaborating to define the burden of diabetes in the elderly population. These data will be incorporated into continuous quality-improvement programs conducted by Stratis Health for the Medicare population in Minnesota. The Minnesota Department of Health will analyze these data by county to help identify areas in which interventions are needed.

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Diabetes-Related Amputations — Continued

Editorial Note: The diabetes-related lower extremity conditions that increase the risk for amputation among persons with diabetes include peripheral neuropathy, peripheral vascular disease, and infection (5). Peripheral neuropathy may cause loss of sensation in feet, resulting in a patient's failure to perceive foot problems and may cause development of foot deformities that increase pressure points susceptible to ulceration. Osteomyelitis and gangrene may develop from inadequate blood supply and infection. Risk factors for amputation include being older, male, a member of certain racial/ethnic groups, having poor glycemic control, having diabetes for a longer period, and practicing or receiving poor preventive health care (1).

The findings in this report indicate that, in Minnesota, approximately half of all hospitalizations for LEA were attributable directly to diabetes. Many of these amputations may have been preventable. Preventive foot-care programs for persons with diabetes can decrease the incidence of LEAs or serious foot conditions leading to LEA by 44%–85% (3). Such programs emphasize foot-care education for persons with diabetes, their families, and their physicians; preventive foot-care practices (e.g., proper footwear and foot hygiene); early detection of foot conditions through frequent foot examinations by patients and physicians; teamwork among health-care providers in different disciplines; and appropriate treatment and follow up (6–8). Recent clinical trials found that good control of blood sugar levels among persons with type 1 or type 2 diabetes can reduce or delay development of peripheral neuropathy, a major precursor of amputation (7,8).

The findings in this report are subject to at least four limitations. First, data were not available for the Medicare enrollees who participated in capitated risk HMO plans. Second, this analysis only included Medicare claims for hospital inpatient care and did not include claims for hospital outpatient care (part A) or claims for physicians (part B), which would enable determination of diabetic status or LEAs performed in an ambulatory setting. Third, numerator data that relied on ICD-9 coding may have contained some inaccuracies. Finally, denominator data relied on estimates of self-reported diabetes status. However, these LEA surveillance data from Minnesota are consistent with those from other studies and are comparable with national data (1–3,9). For example, the average LEA hospitalization rates per 1000 persons with diabetes in the Minnesota Medicare population for 1993–1995 were 9.9 for persons aged 65–74 years and 11.0 for persons aged ≥75 years, compared with hospitalization rates for the U.S. population in 1994 of 10.2 for persons aged 65–74 years and 11.9 for persons aged ≥75 years.

A national health objective for 2000 is to decrease diabetes-related amputation rates by 40% (from 8.2 to 4.9 per 1000 persons with diabetes) (10). CDC is providing assistance to state DCPs for surveillance of diabetes, identification of areas for intervention, and implementation and evaluation of those interventions. Continued collaboration among health-care providers, public health officials, members of community-based organizations, and patients will be necessary to reduce LEAs among patients with diabetes.

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Diabetes-Related Amputations — Continued

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Update: Syringe Exchange Programs — United States, 1997

As of December 1997, more than one third (36%) of the 641,086 cases of acquired immunodeficiency syndrome (AIDS) reported to CDC were directly or indirectly associated with injecting-drug use (1). Syringe exchange programs (SEPs) are one of the strategies employed to prevent infection with human immunodeficiency virus (HIV) among injecting-drug users (IDUs). The goal of SEPs is to reduce the transmission of HIV and other bloodborne infections associated with reuse of blood-contaminated syringes* for drug injection by providing sterile syringes in exchange for used, potentially contaminated syringes. This report summarizes a survey of U.S. SEP activities during January–December 1997 and compares the findings with those of two previous surveys during 1994–1995 and 1996 (2,3). The findings indicate continued expansion in the number, geographic coverage, and activity of SEPs in the United States.†

In November 1997, the Beth Israel Medical Center (BIMC) in New York City, in collaboration with the North American Syringe Exchange Network (NASEN), mailed questionnaires to the directors of 113 SEPs in the United States that were members of NASEN. From December 1997 through March 1998, BIMC contacted SEP directors to conduct structured telephone interviews based on the mailed questionnaires. SEP directors were asked about their program's legal status, number of syringes exchanged during 1997, program operations, services provided, budgets, and community and law enforcement relations.

*For this report, the term "syringes" refers to both syringes and needles.

†Single copies of this report will be available until August 14, 1998, from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; telephone (800) 458-5231 or (301) 519-0459.

Syringe Exchange Programs — Continued

Of the 113 SEPs, 100 (89%) participated in the survey. Of these, 54 began operating before 1995; 20, in 1995; 18, in 1996; and eight, in 1997. One SEP closed in 1997. These 100 SEPs reported operating in 80 cities in 30 states, the District of Columbia, and Puerto Rico⁵; 52 (52%) of the SEPs were located in four states (California [19], New York [14], Washington [11], and Connecticut [eight]). Nine cities had at least two SEPs⁶ (31 SEPs in the nine cities). In the 1996 survey, 87 SEPs reported operating in 71 cities in 26 states, the District of Columbia, and Puerto Rico and during 1994–1995, a total of 60 SEPs reported operating in 46 cities and in 21 states (2,3).

In 1997, a total of 96 of the 100 SEPs provided information about the number of syringes and reported exchanging approximately 17.5 million syringes (median: 57,343 syringes per SEP) (Table 1). The 10 largest volume SEPs (i.e., those that exchanged $\geq 500,000$ syringes) exchanged approximately 10.3 million (59%) of all syringes exchanged.** The SEP in San Francisco reported exchanging the largest number of syringes (1.9 million) in 1997. During 1996, a total of 84 SEPs reported exchanging approximately 14 million syringes (median: 36,017) and in 1994, a total of 55 SEPs exchanged 8 million syringes (median: 39,014).

Most of the 100 SEPs provided other public health and social services: 99% offered instruction in the use of condoms and dental dams to prevent sexual transmission of HIV and other sexually transmitted diseases (STDs); 96% provided IDUs with information about safer injection techniques and/or use of bleach to disinfect injection equip-

⁵California (19 SEPs); New York (14); Washington (11); Connecticut (eight); Massachusetts (five); New Jersey, Oregon, and Puerto Rico (three each); Arizona, Colorado, Illinois, Michigan, Minnesota, Ohio, Pennsylvania, Texas, and Wisconsin (two each); and one each in Alaska, District of Columbia, Florida, Georgia, Hawaii, Indiana, Kansas, Louisiana, Maryland, Missouri, Montana, New Hampshire, North Carolina, Rhode Island, and Tennessee. Staff of one SEP asked its location not be reported.

⁶The following cities have multiple SEPs: New York (12); Los Angeles, Portland, and Seattle (three each); and Boston, Cleveland, Minneapolis, New Haven, and Sacramento (two each).

**States with the 10 largest volume SEPs were: California (three SEPs); New York and Washington (two each); and one each in Illinois, Maryland, and Pennsylvania. The largest volume SEPs were San Francisco AIDS Foundation, California (1.9 million syringes exchanged); Chicago Recovery Alliance, Illinois (1.6 million); Clean Needles Now, Los Angeles, California (1.0 million); Point Defiance AIDS Project, Tacoma, Washington (1.0 million); Seattle-King County Department of Public Health Needle Exchange Program (NEP), Seattle, Washington (0.9 million); Alameda County SEP, Oakland, California (0.8 million); Prevention Point, Philadelphia, Pennsylvania (0.8 million); Baltimore City NEP, Maryland (0.8 million); Lower East Side NEP, Manhattan, New York (0.8 million); and New York Harm Reduction Educators, Bronx, New York (0.7 million).

TABLE 1. Number and percentage of syringe exchange programs (SEPs) and sterile syringes provided by SEPs, by size of program — United States, 1997

Size of SEP*	SEPs		Total syringes exchanged	
	No.	(%)	No.	(%)
<10,000	24	(25)	82,356	(0.5)
10,000– 55,000	24	(25)	700,274	(4.0)
55,001–499,999	38	(40)	6,334,375	(36.3)
$\geq 500,000$	10	(10)	10,330,103	(59.2)
Total	96	(100)	17,447,108	(100.0)

*Based on the number of syringes exchanged in 1997.

Syringe Exchange Programs — Continued

ment; and 94% referred clients for substance abuse treatment programs. Health-care services offered on site included HIV counseling and testing (64%), tuberculosis skin testing (20%), STD screening (20%), and primary health care (19%).

In this survey, SEPs were defined as legal if they operated in a state that had no law requiring a prescription to purchase a hypodermic syringe (i.e., a prescription law) or had an exemption to the state prescription law allowing the SEP to operate; illegal-tolerated if they operated in a state with a prescription law but had received a formal vote of support or approval from a local elected body (e.g., city council); and illegal-underground if the SEP operated in a state with a prescription law but had not received formal support from local elected officials. In 1997, a total of 52 SEPs were legal, 16 were illegal-tolerated, and 32 were illegal-underground.

SEPs reported receiving financial support from various sources including foundations, individuals, and state and local governments. Current federal law prohibits the use of federal funds to carry out any program of distributing sterile needles or syringes for the hypodermic injection of any illegal drug.

The 100 SEPs operated in various settings, including home visits (37%) (syringe pick-up/drop-off sites), storefront locations (35%), vans (35%), sidewalk tables (23%), on-foot outreach (23%), cars (19%), locations where IDUs gather to inject drugs (i.e., shooting galleries) (17%), and health clinics (11%). Sixty-nine (69%) SEPs operated in multiple settings. Ninety-five SEPs reported data on the hours of program operation each week; they reported providing 2078.5 hours (median: 18 hours; range: 1–112 hours) of SEP services each week.

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Editorial Note: The findings in this survey indicate continued growth in the number, geographic coverage, and activity of SEPs in the United States. From 1994–1995 to 1997, there were increases in the number of SEPs participating in these surveys (67% [from 60 to 100]), the number of cities with SEPs (74% [from 46 to 80]), and the number of syringes exchanged (119% [from 8 million to 17.5 million]). However, the scope of SEP activity may be underestimated because some of the known SEPs in the United States did not participate in this survey and some may not be members of NASEN.

The 10 largest volume SEPs are responsible for approximately half of all syringes exchanged in 1997, and the 24 smallest volume SEPs (i.e., those that exchanged <10,000 syringes) reported exchanging only <1% of total syringes (mean: 3431.5 syringes per program). An IDU makes approximately 1000 illicit drug injections per year (4). Larger volume SEPs could have greater community impact in allowing IDUs to use a sterile syringe for every injection.

Many IDUs who participate in SEPs are high-risk drug users, suggesting that SEPs can reach persons at risk for bloodborne infections (including HIV and hepatitis C) and other public health problems (5,6). IDUs who participate in SEPs increase the proportion of drug injections in which a syringe is used only once, thereby reducing the reuse of potentially contaminated syringes (7). In addition, IDUs using syringes obtained from SEPs have lower rates of HIV incidence (compared to IDUs using syringes obtained from the illicit market) (8). Compared with clients referred to substance abuse

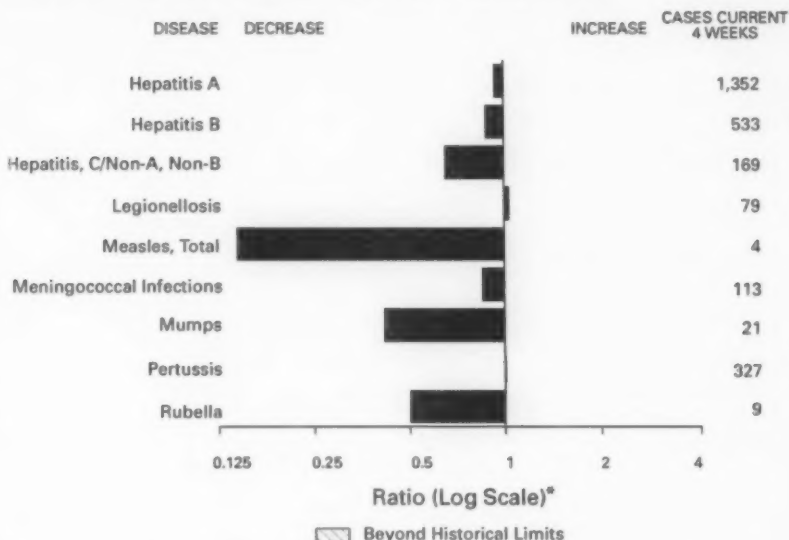
Syringe Exchange Programs — Continued

treatment programs from other sources, IDUs referred by SEPs have comparably good short-term treatment outcomes (9).

SEPs are one component of a community's comprehensive approach currently used to prevent HIV infection among IDUs, their sexual partners, and their children. Access to sterile syringes for drug users who continue to inject also can be provided through the sale of syringes in pharmacies. In addition to SEPs, comprehensive programs for reducing the spread of HIV and other bloodborne infections should include community outreach programs, substance abuse treatment programs, HIV-prevention programs in jails and prisons, prevention of initiation of drug injection, health care for HIV-infected IDUs, and HIV risk-reduction counseling and testing for IDUs and their sexual partners (10).

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FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending August 8, 1998, with historical data — United States

*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending August 8, 1998 (31st Week)

	Cum. 1998		Cum. 1998
Anthrax	-	Plague	5
Bruceellosis	44	Poliomyelitis, paralytic	1
Cholera	6	Psittacosis	30
Congenital rubella syndrome	3	Rabies, human	-
Cryptosporidiosis*	1,172	Rocky Mountain spotted fever (RMSF)	150
Diphtheria	2	Streptococcal disease, invasive Group A	1,438
Encephalitis:		Streptococcal toxic-shock syndrome*	37
California*	17	Syphilis, congenital†	185
eastern equine*	2	Tetanus	20
St. Louis*	1	Toxic-shock syndrome	78
western equine*	-	Trichinosis	7
Hansen Disease	68	Typhoid fever	182
Hantavirus pulmonary syndrome**	9	Yellow fever	-
Hemolytic uremic syndrome, post-diarrheal*	31		
HIV infection, pediatric*†	145		

- no reported cases

* Not notifiable in all states.

† Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).

‡ Updated monthly to the Division of HIV/AIDS Prevention-Surveillance and Epidemiology, National Center for HIV, STD, and

TB Prevention (NCHSTP), last update July 26, 1998.

§ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending August 8, 1998, and August 2, 1997 (31st Week)

Reporting Area	AIDS		Chlamydia		Escherichia coli O157:H7		Gonorrhea		Hepatitis C/NA/NB	
	Cum. 1998*	Cum. 1997	Cum. 1998	Cum. 1997	NETSS†	PHLIS‡	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997
UNITED STATES	27,399	35,436	314,383	265,430	1,344	762	185,476	166,882	2,264	2,037
NEW ENGLAND	1,025	1,470	11,844	10,149	173	127	3,326	3,451	7	41
Maine	21	36	618	582	22	-	40	34	-	-
N.H.	26	19	558	460	23	25	52	64	-	-
Vt.	14	24	244	228	8	6	22	32	-	2
Mass.	522	529	5,002	4,199	90	80	1,228	1,306	28	32
R.I.	76	97	1,417	1,140	5	1	212	266	3	7
Conn.	364	786	4,005	3,540	25	15	1,772	1,749	-	-
MID. ATLANTIC	7,578	11,061	38,080	32,658	129	35	21,334	21,247	233	196
Upstate N.Y.	961	1,728	N	N	96	-	3,508	3,750	181	144
N.Y. City	4,074	5,735	20,945	15,801	4	8	8,916	7,844	-	-
N.J.	1,475	2,273	6,271	5,701	29	28	3,798	4,316	-	-
Pa.	1,088	1,325	10,864	11,156	N	1	5,112	5,337	52	52
E.N. CENTRAL	2,076	2,556	52,149	35,508	214	130	36,857	22,501	318	358
Ohio	430	581	15,106	13,027	54	22	9,496	8,318	7	11
Ind.	355	394	3,507	5,300	57	28	2,225	3,532	4	10
Ill.	625	692	15,283	11	47	-	12,259	U	16	63
Mich.	353	545	12,486	10,841	58	35	9,423	7,976	291	253
Wis.	115	164	5,957	6,400	N	45	2,454	2,675	-	21
W.N. CENTRAL	532	696	18,528	18,495	210	156	9,176	8,323	120	40
Minn.	104	120	3,649	3,863	78	78	1,300	1,354	7	3
Iowa	49	74	2,063	2,650	85	25	660	720	12	20
Mo.	244	331	7,161	6,922	15	29	5,233	4,506	96	5
N. Dak.	4	7	250	497	6	11	29	32	-	2
S. Dak.	11	3	961	737	12	10	152	80	-	-
Nebr.	48	65	1,361	1,140	19	-	494	438	2	2
Kans.	72	88	3,043	2,686	15	5	1,308	1,193	3	8
S. ATLANTIC	8,669	8,699	65,423	55,731	109	79	53,067	54,236	115	138
Del.	91	159	1,473	-	-	1	815	699	-	-
Md.	826	1,078	4,970	4,153	16	9	5,813	6,840	5	4
D.C.	567	658	N	N	1	-	1,997	2,600	-	-
Va.	502	719	6,988	6,925	N	25	3,942	4,691	7	18
W. Va.	59	60	1,631	1,722	6	3	469	546	4	13
N.C.	456	503	12,939	10,095	20	31	11,167	9,813	14	34
S.C.	462	475	11,206	7,462	5	2	7,255	6,655	3	27
Georgia	725	1,071	14,049	10,307	40	-	11,827	11,820	85	151
Fla.	3,191	3,976	12,167	15,067	21	8	9,782	10,572	73	42
E.S. CENTRAL	1,084	1,188	23,338	20,244	69	25	22,566	20,216	105	223
Ky.	156	211	3,645	3,884	18	-	2,087	2,453	16	10
Tenn.	378	495	7,788	7,562	32	22	6,684	6,314	85	151
Ala.	330	287	5,982	4,743	19	2	7,649	6,849	4	6
Miss.	220	195	5,922	4,035	U	1	6,146	4,600	U	56
W.S. CENTRAL	3,328	3,601	43,886	35,214	77	12	25,528	22,921	549	278
Ark.	123	131	2,087	1,765	6	6	1,214	2,874	5	9
La.	586	640	8,671	5,260	3	2	7,570	4,936	19	124
Okla.	183	188	5,753	4,414	10	4	3,148	2,777	7	6
Tex.	2,436	2,642	27,375	23,774	58	-	13,596	12,334	518	139
MOUNTAIN	967	1,032	12,797	16,943	180	84	4,774	4,469	256	181
Mont.	16	26	731	644	8	-	26	27	7	13
Idaho	19	34	1,003	853	18	7	97	64	86	36
Wyo.	1	13	388	315	49	-	18	29	45	42
Colo.	186	264	10	3,750	37	32	1,339	1,256	18	20
N. Mex.	153	105	2,172	2,277	16	11	526	518	63	32
Ariz.	377	247	6,615	6,340	13	13	2,390	2,064	3	23
Utah	70	86	1,378	990	33	15	150	145	21	3
Nev.	143	257	500	1,774	6	6	228	546	13	12
PACIFIC	3,938	5,133	48,338	40,428	183	112	9,848	9,338	537	582
Wash.	270	417	6,582	5,419	31	22	1,132	1,135	12	18
Oreg.	116	188	3,382	2,887	54	48	470	444	2	2
Calif.	3,439	4,449	35,971	30,258	96	35	7,801	7,235	468	463
Alaska	17	42	1,128	848	2	-	187	233	1	-
Hawaii	96	37	1,275	1,016	N	7	258	291	54	99
Guam	-	2	8	193	N	-	2	27	-	-
P.R.	1,141	1,198	U	U	U	U	242	378	-	-
V.I.	18	70	N	N	N	U	U	U	U	U
Amer. Samoa	-	-	N	N	N	U	U	U	U	U
C.N.M.I.	-	1	N	N	N	U	14	17	-	2

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention-Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update July 26, 1998.

†National Electronic Telecommunications System for Surveillance.

‡Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending August 8, 1998, and August 2, 1997 (31st Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998*	Cum. 1997	Cum. 1998
UNITED STATES	865	512	5,543	4,975	700	998	4,263	4,958	8,212	10,335	4,138
NEW ENGLAND	39	38	1,833	1,276	41	45	42	99	252	258	797
Maine	1	1	6	7	4	1	1	-	5	16	122
N.H.	3	4	27	9	3	2	1	-	6	10	37
Vt.	4	6	6	6	-	2	4	-	1	3	33
Mass.	15	11	412	209	14	21	25	47	135	143	270
R.I.	8	5	217	189	2	5	1	2	34	18	47
Conn.	8	11	1,165	876	18	14	10	50	71	68	288
MID. ATLANTIC	157	92	3,032	2,642	170	312	150	245	1,655	1,827	953
Upstate N.Y.	46	26	1,745	1,043	49	46	22	24	185	236	870
N.Y. City	22	7	12	122	80	194	32	53	879	939	11
N.J.	7	14	879	818	22	53	53	101	350	376	116
Pa.	82	45	848	659	19	19	43	67	241	276	167
E.N. CENTRAL	201	175	51	418	61	98	562	371	609	1,083	81
Ohio	83	74	41	18	4	12	80	130	174	174	41
Ill.	38	29	8	15	6	9	130	94	76	88	5
Mich.	14	13	1	8	18	41	212	U	361	583	8
Wis.	44	38	1	17	31	24	104	72	172	168	19
	22	21	U	380	2	12	36	75	-	70	8
W.N. CENTRAL	44	35	69	52	50	31	87	107	238	323	461
Minn.	3	1	47	27	26	10	6	14	87	84	82
Iowa	6	9	16	4	5	8	-	6	20	38	108
Mo.	14	5	1	15	10	7	68	61	86	127	19
N. Dak.	-	2	-	1	2	2	-	-	3	8	89
S. Dak.	-	-	-	-	-	-	-	-	-	-	-
Nebr.	15	12	3	2	1	-	1	-	14	7	90
Kans.	4	4	2	3	6	3	8	24	18	47	68
S. ATLANTIC	78	66	394	403	157	159	1,813	1,989	1,195	1,897	1,229
Del.	7	8	12	82	1	2	16	16	U	19	17
Md.	19	14	267	258	50	51	410	547	179	178	308
D.C.	5	3	4	7	12	10	46	77	64	59	-
Va.	8	14	35	18	29	43	97	150	144	194	371
W. Va.	N	N	7	3	1	-	2	3	26	33	54
N.C.	6	9	35	20	12	9	445	442	244	230	136
S.C.	7	3	3	1	4	10	179	237	185	207	98
Ga.	3	-	3	1	17	20	483	334	283	355	120
Fla.	21	16	28	13	31	14	135	183	70	622	125
E.S. CENTRAL	33	34	47	52	16	20	720	1,098	614	766	174
Ky.	16	7	11	11	3	6	70	89	108	111	25
Tenn.	12	20	25	23	9	4	339	467	208	284	93
Ala.	5	2	11	4	4	7	162	277	162	232	56
Miss.	U	5	U	14	U	3	149	266	136	139	U
W.S. CENTRAL	20	12	18	43	20	10	561	740	246	1,527	112
Ark.	-	1	6	14	1	2	71	111	72	118	21
La.	2	2	2	2	6	5	237	225	U	119	-
Okla.	8	1	2	9	2	3	32	69	101	131	91
Tex.	10	8	8	18	11	-	221	335	-	1,159	-
MOUNTAIN	43	30	8	6	35	49	129	99	246	336	98
Mont.	2	1	-	-	-	2	-	-	12	6	34
Idaho	2	2	2	2	7	-	-	-	8	7	-
Wyo.	1	1	-	1	-	2	1	-	3	2	45
Colo.	8	9	3	-	11	24	8	5	U	57	1
N. Mex.	2	1	2	-	11	6	12	4	34	31	3
Ariz.	10	7	-	1	5	7	102	78	124	155	9
Utah	16	6	-	-	1	3	3	4	36	14	6
Nev.	2	3	1	2	-	5	3	8	29	64	-
PACIFIC	50	30	91	83	150	274	199	210	3,157	2,318	233
Wash.	8	6	5	4	14	10	23	7	144	182	-
Oreg.	-	-	9	12	13	14	3	5	71	97	1
Calif.	41	23	76	67	120	242	173	196	2,818	1,871	211
Alaska	-	1	-	-	1	3	-	1	31	51	21
Hawaii	1	1	-	-	2	5	-	1	93	117	-
Guam	-	-	-	-	-	-	-	3	-	13	-
P.R.	-	-	-	-	-	-	-	-	-	-	-
V.I.	U	U	U	U	U	U	121	148	46	129	32
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	-	-	-	-	98	9	54	2	-

N: Not notifiable U: Unavailable -: no reported cases

*Additional information about areas displaying "U" for cumulative 1998 Tuberculosis cases can be found in Notice to Readers, MMWR Vol. 47, No. 2, p. 39.

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending August 8, 1998, and August 2, 1997 (31st Week)

Reporting Area	H. influenzae, invasive		Hepatitis (Viral), by type				Measles (Rubella)					
	Cum. 1998*	Cum. 1997	A		B		Indigenous		Imported [†]		Total	
			Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	1998	Cum. 1998	1998	Cum. 1998	Cum. 1998	Cum. 1997
UNITED STATES	663	699	12,988	16,419	4,807	5,549	-	28	-	19	47	100
NEW ENGLAND	37	39	151	420	76	101	-	1	-	2	3	18
Maine	2	3	13	45	2	6	-	-	-	-	-	1
N.H.	7	6	8	21	10	7	-	-	-	-	-	1
Vt.	3	3	13	8	3	5	-	-	-	1	1	-
Mass.	22	23	47	176	18	43	-	1	-	1	2	15
R.I.	2	2	10	92	43	11	-	-	-	-	-	-
Conn.	1	2	60	78	-	29	-	-	-	-	-	1
MID. ATLANTIC	94	101	856	1,312	671	805	-	9	-	4	13	21
Upstate N.Y.	39	27	203	196	184	168	-	2	-	-	2	5
N.Y. City	18	27	213	587	176	303	-	-	-	-	-	7
N.J.	32	33	197	194	105	157	-	7	-	1	8	3
Pa.	5	14	243	335	206	177	-	-	-	3	3	6
E.N. CENTRAL	102	117	1,755	1,690	493	914	-	11	-	3	14	8
Ohio	38	65	202	213	45	54	-	-	-	1	1	-
Ind.	27	11	99	185	61	69	-	2	-	1	3	-
Ill.	30	27	273	441	90	175	-	-	-	-	-	6
Mich.	3	14	1,068	716	275	260	-	9	-	1	10	2
Wis.	4	-	113	125	22	356	-	-	-	-	-	-
W.N. CENTRAL	64	36	971	1,241	254	303	-	-	-	-	-	12
Minn.	49	27	83	111	24	23	-	-	-	-	-	3
Iowa	2	3	384	215	45	23	-	-	-	-	-	-
Mo.	8	3	391	651	151	222	U	-	U	-	-	1
N. Dak.	-	-	3	10	4	3	U	-	U	-	-	-
S. Dak.	-	2	18	15	1	-	-	-	-	-	-	8
Nebr.	-	1	24	50	9	9	-	-	-	-	-	-
Kans.	5	-	68	189	20	23	U	-	U	-	-	-
S. ATLANTIC	137	108	1,109	956	690	698	-	3	-	5	8	9
Del.	-	-	3	20	-	4	-	-	-	1	1	-
Md.	41	44	193	131	96	102	-	-	-	1	1	2
D.C.	-	-	34	16	8	24	-	-	-	-	-	1
Va.	13	7	144	126	60	77	-	-	-	2	2	1
W. Va.	4	3	1	6	4	9	-	-	-	-	-	-
N.C.	20	17	66	118	127	151	-	-	-	-	-	1
S.C.	3	3	18	69	22	62	-	-	-	-	-	1
Ge.	28	21	323	199	117	71	-	1	-	1	2	1
Fla.	28	13	327	271	256	198	-	2	-	-	2	2
E.S. CENTRAL	40	39	217	393	240	409	-	-	-	2	2	1
Ky.	6	6	14	49	25	26	-	-	-	-	-	-
Tenn.	24	23	153	243	170	277	-	-	-	-	-	-
Ala.	10	8	50	58	45	43	-	-	-	2	2	1
Miss.	U	2	U	43	U	63	U	U	U	U	U	-
W.S. CENTRAL	38	13	2,501	3,395	811	703	-	-	-	-	-	7
Ark.	-	2	62	142	54	53	-	-	-	-	-	-
La.	18	7	51	127	62	82	-	-	-	-	-	-
Okla.	18	22	351	975	52	25	-	-	-	-	-	-
Tex.	2	2	2,037	2,151	643	543	-	-	-	-	-	7
MOUNTAIN	73	65	2,035	2,489	519	523	-	-	-	-	-	7
Mont.	-	-	67	53	4	6	-	-	-	-	-	-
Idaho	-	1	169	87	20	17	-	-	-	-	-	-
Wyo.	1	2	25	21	2	16	-	-	-	-	-	-
Colo.	15	11	163	262	71	100	-	-	-	-	-	-
N. Mex.	5	7	97	196	215	170	-	-	-	-	-	-
Ariz.	41	27	1,309	1,228	133	118	-	-	-	-	-	5
Utah	4	3	131	383	45	60	-	-	-	-	-	-
Nev.	7	14	74	259	29	36	U	-	U	-	-	2
PACIFIC	78	161	3,393	4,533	1,053	1,093	-	4	-	3	7	17
Wash.	7	3	696	314	71	48	-	-	-	1	1	1
Oreg.	32	25	231	230	69	66	-	-	-	-	-	-
Calif.	31	124	2,429	3,875	900	960	-	4	-	2	6	12
Alaska	1	2	14	24	8	11	-	-	-	-	-	-
Hawaii	7	7	23	90	5	8	-	-	-	-	-	4
Guam	-	-	-	-	-	3	U	-	U	-	-	-
P.R.	2	-	37	198	263	461	-	-	-	-	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	6	1	1	28	34	U	-	U	-	-	1

N: Not notifiable U: Unavailable - : no reported cases

*Of 150 cases among children aged <5 years, serotype was reported for 82 and of those, 33 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending August 8, 1998, and August 2, 1997 (31st Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997
UNITED STATES	1,723	2,210	7	292	391	82	2,835	3,137	-	295	125
NEW ENGLAND	74	138	-	2	8	4	498	609	-	36	1
Maine	5	15	-	-	-	-	5	7	-	-	-
N.H.	4	12	-	-	-	-	40	70	-	-	-
Vt.	1	3	-	-	-	3	52	181	-	-	-
Mass.	36	71	-	1	2	-	369	327	-	6	1
R.I.	3	11	-	-	5	-	5	12	-	1	-
Conn.	25	26	-	1	1	1	27	12	-	29	-
MID. ATLANTIC	159	233	1	18	45	5	311	235	-	124	28
Upstate N.Y.	42	64	-	3	10	2	159	88	-	110	4
N.Y. City	18	41	-	4	3	-	9	54	-	9	24
N.J.	41	44	-	2	7	-	5	11	-	4	-
Pa.	58	84	1	9	25	3	138	82	-	1	-
E.N. CENTRAL	261	324	2	53	48	14	249	314	-	-	5
Ohio	94	119	1	21	18	11	90	92	-	-	-
Ind.	48	35	-	5	6	-	69	35	-	-	-
Ill.	64	94	-	7	8	3	35	45	-	-	1
Mich.	31	47	1	20	14	-	38	32	-	-	-
Wis.	24	29	-	-	3	-	17	110	-	-	4
W.N. CENTRAL	144	164	-	21	12	23	244	187	-	27	-
Minn.	25	29	-	10	5	17	149	120	-	-	-
Iowa	26	38	-	7	6	6	53	10	-	-	-
Mo.	53	71	U	3	-	U	16	33	U	2	-
N. Dak.	2	1	U	1	-	U	2	1	U	-	-
S. Dak.	6	4	-	-	-	-	6	3	-	-	-
Nebr.	7	6	-	-	1	-	8	4	-	-	-
Kans.	25	15	U	-	-	U	10	16	U	25	-
S. ATLANTIC	305	376	-	37	46	6	176	281	-	9	58
Del.	1	5	-	-	-	-	2	1	-	-	-
Md.	24	36	-	-	1	-	31	87	-	-	-
D.C.	-	6	-	-	-	-	1	3	-	-	-
Va.	24	38	-	5	8	1	8	34	-	-	1
W. Va.	12	14	-	-	-	-	1	5	-	-	-
N.C.	45	72	-	9	7	-	65	80	-	6	50
S.C.	44	40	-	4	10	2	22	11	-	-	6
Ga.	65	75	-	1	6	-	10	8	-	-	-
Fla.	90	90	-	18	14	3	36	52	-	3	1
E.S. CENTRAL	129	165	1	7	21	1	65	74	-	1	1
Ky.	19	38	-	-	3	-	22	26	-	-	-
Tenn.	46	58	-	1	3	1	23	25	-	-	-
Ala.	64	52	U	6	6	-	20	16	-	1	1
Miss.	U	17	U	U	9	U	U	7	U	U	-
W.S. CENTRAL	195	201	-	40	44	4	200	126	-	80	3
Ark.	25	25	-	-	1	-	26	10	-	-	-
La.	42	43	-	8	11	-	2	13	-	-	-
Okla.	29	24	-	-	-	-	18	17	-	-	-
Tex.	99	109	-	32	32	4	154	86	-	80	3
MOUNTAIN	97	130	2	26	48	9	587	795	-	5	6
Mont.	3	7	-	-	-	-	3	14	-	-	-
Idaho	6	8	-	3	2	1	194	467	-	-	2
Wyo.	4	-	-	1	1	-	8	6	-	-	-
Colo.	19	35	2	8	3	1	123	214	-	-	-
N. Mex.	17	22	N	N	N	5	75	48	-	1	-
Ariz.	33	33	-	5	31	-	129	23	-	1	4
Utah	11	11	-	3	6	1	36	12	-	2	-
Nev.	4	13	U	6	5	U	13	11	U	1	-
PACIFIC	359	479	1	88	118	16	505	516	-	13	23
Wash.	50	56	1	7	13	8	193	216	-	9	5
Oreg.	58	94	N	N	N	6	36	23	-	-	-
Calif.	245	324	-	63	86	2	268	259	-	2	10
Alaska	2	1	-	2	5	-	3	4	-	-	-
Hawaii	4	4	-	16	14	-	5	14	-	2	8
Guam	-	1	U	-	1	U	-	-	U	-	-
P.R.	6	8	-	1	5	-	2	-	-	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	U	2	4	U	1	-	U	-	-

N: Not notifiable

U: Unavailable

-: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending August 8, 1998 (31st Week)

Reporting Area	All Causes, By Age (Years)						P&I [†] Total	Reporting Area	All Causes, By Age (Years)						P&I [†] Total
	All Ages	>65	45-64	25-44	1-24	<1			All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	577	411	104	34	13	15	31	S. ATLANTIC	995	650	205	91	23	24	69
Boston, Mass.	147	104	25	10	4	4	15	Atlanta, Ga.	U	U	U	U	U	U	U
Bridgeport, Conn.	40	26	9	3	1	1	2	Baltimore, Md.	173	113	38	17	1	4	19
Cambridge, Mass.	14	13	1	-	-	-	-	Charlotte, N.C.	101	57	29	5	5	5	12
Fall River, Mass.	23	22	1	-	-	-	-	Jacksonville, Fla.	195	158	23	5	7	2	7
Hartford, Conn.	67	40	18	4	3	2	2	Miami, Fla.	94	42	26	18	2	6	-
Lowell, Mass.	20	17	2	1	-	-	1	Norfolk, Va.	28	20	4	3	-	1	2
Lynn, Mass.	14	11	2	1	-	-	1	Richmond, Va.	60	31	21	6	2	-	1
New Bedford, Mass.	26	23	2	1	-	-	1	Savannah, Ga.	61	38	12	3	-	1	6
New Haven, Conn.	41	25	8	4	2	2	1	St. Petersburg, Fla.	62	44	7	6	3	2	8
Providence, R.I.	60	39	13	3	1	4	-	Tampa, Fla.	198	135	42	14	1	4	16
Somerville, Mass.	5	3	1	1	-	-	-	Washington, D.C.	U	U	U	U	U	U	U
Springfield, Mass.	41	28	9	2	1	1	1	Wilmington, Del.	23	12	3	8	-	-	-
Waterbury, Conn.	28	24	3	1	-	-	-								
Worcester, Mass.	51	36	10	3	1	1	8								
MID. ATLANTIC	2,143	1,507	428	143	41	24	108	E.S. CENTRAL	825	557	160	67	26	15	33
Albany, N.Y.	41	33	4	3	-	1	2	Birmingham, Ala.	166	116	33	8	6	3	14
Allentown, Pa.	10	10	-	-	-	-	-	Chattanooga, Tenn.	90	69	10	8	3	-	1
Buffalo, N.Y.	71	50	13	4	3	1	2	Knoxville, Tenn.	80	61	10	5	3	1	-
Camden, N.J.	33	20	7	3	1	2	6	Lexington, Ky.	69	45	14	6	2	2	4
Elizabeth, N.J.	28	19	5	4	-	-	-	Memphis, Tenn.	190	113	45	20	7	5	7
erie, Pa.	31	22	5	1	2	1	1	Mobile, Ala.	68	52	7	5	3	1	1
Jersey City, N.J.	57	33	19	4	1	-	-	Montgomery, Ala.	61	45	12	3	-	1	6
New York City, N.Y.	1,095	769	236	65	18	7	50	Nashville, Tenn.	101	56	29	12	2	2	-
Newark, N.J.	71	33	17	1	3	4	-								
Paterson, N.J.	11	8	2	1	-	-	-	W.S. CENTRAL	1,400	853	302	128	76	41	65
Philadelphia, Pa.	300	201	60	25	10	4	12	Austin, Tex.	58	31	14	7	4	2	2
Pittsburgh, Pa.	37	31	4	2	-	-	2	Baton Rouge, La.	36	19	7	7	3	-	-
Reading, Pa.	34	28	3	1	1	3	3	Corpus Christi, Tex.	55	35	11	6	3	-	4
Rochester, N.Y.	114	85	23	3	1	2	9	Dallas, Tex.	180	103	39	20	10	8	1
Schenectady, N.Y.	27	22	4	-	1	-	1	El Paso, Tex.	79	55	18	2	3	1	4
Scranton, Pa.	29	26	2	1	-	-	2	Ft. Worth, Tex.	103	70	20	5	5	3	8
Syracuse, N.Y.	105	81	15	7	1	1	11	Houston, Tex.	385	203	103	42	26	11	28
Trenton, N.J.	28	21	4	1	1	1	3	Little Rock, Ark.	82	50	19	3	4	6	1
Utica, N.Y.	U	U	U	U	U	U	U	New Orleans, La.	68	35	15	12	2	4	-
Yonkers, N.Y.	U	U	U	U	U	U	U	San Antonio, Tex.	222	158	33	16	10	5	9
								Shreveport, La.	22	17	3	2	-	-	-
								Tulsa, Okla.	110	77	20	6	6	1	7
E.N. CENTRAL	1,479	1,025	273	115	33	33	76	MOUNTAIN	896	572	179	90	30	25	50
Akron, Ohio	45	34	7	2	1	1	-	Albuquerque, N.M.	100	67	21	11	1	-	1
Canton, Ohio	27	23	3	1	-	-	2	Boise, Idaho	35	24	7	2	2	-	2
Chicago, Ill.	U	U	U	U	U	U	U	Colo. Springs, Colo.	50	33	12	3	1	1	1
Cincinnati, Ohio	83	59	11	9	3	1	13	Denver, Colo.	102	64	20	8	3	7	9
Cleveland, Ohio	138	93	31	11	1	2	-	Las Vegas, Nev.	195	111	45	24	10	5	10
Columbus, Ohio	162	109	31	16	2	4	13	Ogden, Utah	25	18	2	4	-	1	4
Dayton, Ohio	117	91	18	4	3	1	12	Phoenix, Ariz.	157	103	22	18	6	8	7
Detroit, Mich.	182	102	40	24	8	3	3	Pueblo, Colo.	26	18	6	2	-	-	-
Evansville, Ind.	51	37	10	2	-	2	1	Salt Lake City, Utah	91	60	16	10	3	2	11
Fort Wayne, Ind.	45	33	9	2	-	1	2	Tucson, Ariz.	115	74	28	8	4	1	5
Gary, Ind.	6	3	2	-	-	-	-								
Grand Rapids, Mich.	47	34	7	3	2	1	4	PACIFIC	1,556	1,075	273	108	39	61	110
Indianapolis, Ind.	173	110	40	13	5	5	9	Berkeley, Calif.	14	12	1	-	-	1	2
Lansing, Mich.	44	38	2	3	1	-	3	Fresno, Calif.	80	55	12	8	3	2	3
Milwaukee, Wis.	103	77	14	10	1	1	8	Glendale, Calif.	24	16	6	2	-	-	1
Peoria, Ill.	23	13	6	2	2	-	-	Honolulu, Hawaii	66	49	14	3	-	-	6
Rockford, Ill.	39	25	9	3	1	1	1	Long Beach, Calif.	69	53	9	2	2	3	9
South Bend, Ind.	39	26	6	5	-	2	3	Los Angeles, Calif.	339	235	61	24	6	13	19
Toledo, Ohio	57	70	20	4	2	2	2	Pasadena, Calif.	30	18	9	1	-	2	2
Youngstown, Ohio	58	48	7	1	1	1	-	Portland, Ore.	121	81	25	9	5	1	7
								Sacramento, Calif.	143	99	26	7	7	4	13
W.N. CENTRAL	873	601	155	64	19	27	35	San Diego, Calif.	138	98	25	14	1	-	10
Des Moines, Iowa	140	103	23	8	4	2	15	San Francisco, Calif.	127	89	22	12	2	2	13
Duluth, Minn.	46	30	11	3	-	2	1	San Jose, Calif.	106	75	17	9	3	1	10
Kansas City, Kans.	46	30	10	5	-	-	-	Santa Cruz, Calif.	22	19	1	1	1	-	4
Kansas City, Mo.	104	61	21	9	2	4	2	Seattle, Wash.	132	85	30	9	6	2	4
Lincoln, Neb.	31	24	4	3	-	-	3	Spokane, Wash.	47	37	6	2	1	1	1
Minneapolis, Minn.	136	108	15	5	2	5	7	Tacoma, Wash.	99	54	9	5	2	29	4
Omaha, Neb.	73	45	18	5	2	3	3								
St. Louis, Mo.	119	71	29	9	-	10	2	TOTAL	10,744*	7,251	2,079	840	300	265	577
St. Paul, Minn.	81	64	10	4	2	1	2								
Wichita, Kans.	98	64	14	13	7	-	-								

U: Unavailable - : no reported cases

*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fatal deaths are not included.

†Pneumonia and influenza.

‡Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

§Total includes unknown ages.

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